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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,442	02/11/2005	Peter Kukla	013344-9055-00	9973
23409 7590 02/01/2007 MICHAEL BEST & FRIEDRICH, LLP 100 E WISCONSIN AVENUE Suite 3300 MILWAUKEE, WI 53202			EXAMINER CLEMENTE, ROBERT ARTHUR	
			ART UNIT	PAPER NUMBER
			1724	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/01/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/506,442

Applicant(s)

KUKLA, PETER

Examiner

Robert A. Clemente

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44, 75 and 76 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 26, 27, 31, 32, 35-37, 41-44, 75 and 76 is/are rejected.
- 7) ☒ Claim(s) 23-25, 28-30, 33, 34 and 38-40 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "90" has been used to designate both the second gas flow path tube and the second ceramic mounting portion. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because in figure 2 the reference line from reference number "18" connects to the electrode entrance and not the gas entry tube. In figures 6 and 7, reference number "16" is shown in the second chamber. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and

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where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

"128" in figures 12-14 as in page 19 line 2.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: In page 12 line 18, reference numeral "10" should be changed to --4--, since the wall plate is being referred to. In page 12 line 21 and page 13 line 27, "figure 4" should be changed to --figure 5--, since the discussed parts are not shown in figure 4. In page 21 lines 5, 6, and 9, "Figures 17 and 18" should be changed to --Figures 17, 18, and 19--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 17 and 18 recite the limitations "the second chamber" and "the first chamber", respectively, in the last line of the claims. There is insufficient antecedent basis for these limitations in the claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 – 5, 7 – 11, 14, 19, 21, 22, 26, 27, 32, 37, 42, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by International Patent No. WO 00/50745 to Windawi.

In regard to claims 1, 14, and 75, the claims recite a means for at least partly removing, or collecting, at least one pollutant. Thus the claim expresses a means for performing a specified function without the recital of the structure in support thereof, as discussed under 35 U.S.C. 112, sixth paragraph. As described in the specification, a means for at least partly removing, or collecting, at least one pollutant shall be construed to cover a filter or any reasonable equivalent thereof. Also In regard to claim 75, the claim recites a “means for charging particulates in the gas stream”. The “means for charging particulates in the gas stream shall be construed to cover an ionizing electrode or any reasonable equivalent thereof.

Windawi teaches a pollutant removal device for at least partly removing a pollutant from a gas flow, the device comprising a gas flow arrangement apparatus comprising a gas entrance and a gas exit, a first flow path from the gas entrance to the gas exit through a means for at least partly removing at least one pollutant from a gas flow stream and second flow path from the gas entrance to the gas exit other than

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through the removing means. See figures 1 and 2, and the respective portions of the specification. Figure 1 shows a device with a gas entrance and gas exit and cells (100) for performing a filtering and catalysis function. As shown in figure 2 and discussed in page 2 lines 27 and 28, the ends of some, but not all, of the cells are blocked by barriers (200, 201). The gas flow that enters the blocked cells (240, 250) must flow through the walls (265, 270, 275, 280) in order to exit. As disclosed in page 4 lines 26 and 27, the walls collect the particulate material and thus act as a filter for removing the pollutants. The second gas flow is straight through the unblocked cells (210, 220, 230), where the gas does not pass through the filtering walls.

In regard to claim 2, the gas flow path through the filtering walls enters into the gas flow path through the unblocked cells, and therefore the two gas flow paths intersect.

In regard to claim 3, the first flow path through the filtering walls diverges from the second flow path at the entrance to the cells, which is upstream of the sides of the walls, or the pollutant removing means.

In regard to claim 4, the first flow path and the second flow path intersect completely with each other at the exit from the cells, which is downstream of the filtering walls, or the pollutant removing means.

In regard to claim 5, the entrance of the cells splits the first gas flow path from the second gas flow path, and therefore the entrance of the cells can be considered a separator for diverting pollutant to the filtering walls, or pollutant removing means.

In regard to claims 7, 8, 19, 21, and 22, as discussed above, the first flow path diverges from the second gas flow path at the entrance of the cells. A cell can be considered a tube through which gas can pass, as broadly recited in the claim. The cells are inherently perforated since gas can flow through the cell walls, and hence are at least partly porous to the gas stream. Inherently since the cells are porous there are a plurality of holes therethrough.

In regard to claim 26, the entire length of the filtering walls of the cells is made from the same material; therefore inherently the entire length of the tube is made from a perforated material.

In regard to claims 9 and 27, the second gas flow path passes through the unblocked cells, which can also be considered gas flow tubes. The unblocked end of the cells, where the flow paths intersect, can be considered a slot as broadly recited in the claims.

In regard to claim 10, referring to figure 1, the area of the device before the cells can be considered a first chamber, the area encompassed by the cells can be considered a second chamber, and the area after the cells can be considered a third chamber. The gas enters into the first chamber and the flow paths diverge at the entrance to the cells, or second chamber. As discussed in page 2 lines 29 and 30, the barriers of the blocked cells can also be formed of a filtering material that allows gas to pass through, but not particulate. In this embodiment there are two openings for the gas to flow into the third chamber, through the end of the unblocked cells, or through the gas permeable barriers. The gas exit is located in the third chamber as shown in figure 1.

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In regard to claim 11, as discussed above, the walls of the cells are filters, which remove pollutants from the gas stream.

In regard to claim 32, the cells, as discussed above, can be considered tubes and each has an inlet and an outlet.

In regard to claim 37, as shown in figure 1, there is a tube that connects to the inlet of the device. The tube can be considered an expansion tube, as broadly recited in the claim, since the gas is allowed to expand from the tube exit.

In regard to claim 42, as disclosed in page 6 lines 14 and 15, the cell walls have a catalyst coating. The coating is on the walls of the unblocked cells, or second flow path, and can be considered a catalytic converter.

In regard to claim 43, as discussed in page 1 lines 13 and 14, the device is meant to be used for the exhaust gases of internal combustion engines. Inherently, the device could be fitted to the internal combustion engine of a vehicle.

10. Claims 1, 3, 5 – 7, 11, 14 – 16, 20, 35, 36, 41, 43, 75, and 76 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,376,637 to Yang.

Yang teaches a pollutant removal device for at least partly removing a pollutant from a gas flow, the device comprising a gas flow arrangement apparatus comprising a gas entrance and a gas exit, a first flow path from the gas entrance to the gas exit through a means for at least partly removing at least one pollutant from a gas flow stream and second flow path from the gas entrance to the gas exit other than through the removing means. See figures 1 and 10, and the respective portions of the specification. Figure 1 shows an automobile (20) with a diesel engine (26), or

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combustion generator, and a particle removing device (22). An embodiment of the particle removing device is shown in detail in figure 10. There is a gas entrance on the left side of the device in figure 10 and a gas exit on the right side. There is a first flow path through a first conduit (120) and second conduit (124) to a filter for collecting particles. There is also a second gas flow path straight through the first conduit (120), in which the gas exits without passing through the filter, or pollutant removing means.

In regard to claim 3, as shown in figure 10, the gas flow paths diverge upstream of the filter (128).

In regard to claims 5, 6, and 7, the gas flow splits at an annular scoop, or separator, which diverts a more particle laden gas stream to the filter. As shown in figure 10, the annular scoop is generally conical in shape and has an opening through the center to allow the second gas flow path to flow therethrough. The annular scoop can also be considered a tube through which gas can pass.

In regard to claim 11, as discussed above the pollutant removing means comprises a filter (128).

In regard to claims 15 and 16, Yang also shows an electrode (106), in figure 10, which gives the particles in the gas stream a charge, or ionizes them. The particles charged by the electrode are electrostatically precipitated onto the discharge grid (129).

In regard to claims 19, 20, 31, and 36, as shown in figure 10, a portion of the conduit (120), or tube, extends back around the electrode, or ionizing means. The gas stream flows through this portion of the conduit before it diverges. Since the gas can flow through the tube it is inherently at least partly porous to the gas stream.

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Additionally, the conduit, or tube, is shown to be circular and located before the flow paths diverge, and therefore the tube can be considered to be located in both flow paths.

In regard to claim 35, the electrode is mounted only in the end of the conduit before the gas flow paths diverge.

In regard to claim 41, the annular scoop (122) of the device is arranged in a manner to bias the particles, or pollutants, that escape the electrostatic precipitation towards the first flow path. The particles are drawn toward the discharge grid (129) and if they are not collected on the grid they will be in the portion of the gas stream near the wall. The annular scoop deflects the portion of the gas stream closer to the wall of the conduit to the first flow path, thus biasing the particles towards the first flow path.

In regard to claim 75, Yang teaches a combustion generator comprising an apparatus for removing pollutants from a gas stream, the apparatus comprising means for charging particulates in the gas stream and a tube through which the gas stream at least partly flows, whereby the tube is at least partly porous to the gas stream and the apparatus additionally comprises means for collecting at least one pollutant, in which exhaust gas from the generator flows to an apparatus inlet. Figure 1 shows an automobile (20) with a diesel engine (26), or combustion generator, and a particle removing device (22). The device has an electrode (106) that gives the particles in the gas stream a charge, or ionizes them. The device includes a conduit (120), or tube, through which the gas stream flows. The gas stream flows freely through the conduit, or

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tube, therefore it is at least partly porous to the gas stream. Additionally, the device contains a filter (128) for further collecting particles, or at least one pollutant.

In regard to claim 76, as discussed above the combustion generator is a diesel engine, which is a form of an internal combustion engine.

11. Claims 1, 14, 43, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 3,129,078 to Hobbs.

Hobbs teaches a pollutant removal device for at least partly removing a pollutant from a gas flow, the device comprising a gas flow arrangement apparatus comprising a gas entrance and a gas exit, a first flow path from the gas entrance to the gas exit through a means for at least partly removing at least one pollutant from a gas flow stream and second flow path from the gas entrance to the gas exit other than through the removing means. See figure 1 and the respective portions of the specification. The device of Hobbs has an inlet extension (9) and an outlet extension (9'). The device has a first flow path through the filtering material (15), or pollutant removing device. The device also has a second flow path through the apertures (16) on the inlet extension (9), the space (20) bypassing the filter, and through the apertures (17) in the outlet extension.

In regard to claims 43 and 44, as disclosed in column 1 lines 7 – 12, the device is meant to be fitted on the exhaust pipes of motor vehicles in place of conventional silencers that do not have a pollution removing means.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Windawi in view of US Patent No. 4,276,066 to Bly et al.

Windawi is discussed above in paragraph 10. Windawi does not disclose a regenerative filter, which is electrically regenerative. Bly et al. discloses a monolithic diesel exhaust filter with electrical heating wires to regenerate the filter, as discussed in the abstract.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Windawi to make the filtering walls of the cells regenerative by including electrical heating elements as suggested by Bly et al. in order to burn off some of the accumulated particulate and extend the usable operating time of the filter.

Allowable Subject Matter

15. Claims 23 – 25, 28 – 30, 33, 34, and 38 – 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In regard to claims 23 – 25, the examiner did not find any prior art that taught or suggested a pollution removal device with a perforated tube, in which the tube has holes that are evenly sized or spaced, or that the tube is substantially annular.

In regard to claims 28 – 30, the examiner did not find any prior art that taught or suggested a pollution removal device with a tube having a plurality of slots.

In regard to claim 33, the examiner did not find any prior art that taught or suggested a tube whose cross-sectional area decreased along the length of the tube.

In regard to claim 34, the examiner did not find any prior art that taught or suggested a tube surrounding an electrode in a pollution removal device, where the tube is at least partially coated with a barrier coating for slowing the discharge time of charged agglomerates.

In regard to claims 38 – 40, the examiner did not find any prior art that taught or suggested a pollution removal device with a diverting tube extending from a first expansion tube to a second expansion tube defined by the tube.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kammel discloses a diesel exhaust filter with a bypass around the filter.

Thaler discloses an electrostatic precipitator particulate trap with a second flow path around a filter.

Spry discloses an air cleaner device with a flow path around the filter.

Freesh discloses a particulate trap with an alternate flow path for the particulate laden gas stream.

Rao, et al. discloses an engine exhaust system with a flow path around the filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Clemente whose telephone number is (571) 272-1476. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Smith Duane can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A Clemente
Examiner
Art Unit 1724

RAC

DUANE SMITH
PRIMARY EXAMINER
D. Smith
1-19-07